

FORM PTO-100 (REV. 10-96)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 4987
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (If known, see 37 CFR 1.51) 09/786355
INTERNATIONAL APPLICATION NO. PCT/CH99/00372	INTERNATIONAL FILING DATE 11 August 1999	PRIORITY DATE CLAIMED 15 September 1998	
TITLE OF INVENTION Tube, Use of a Plastic Bag and Process for Producing a Tube			
APPLICANT(S) FOR DO/EO US LINDENBERGER et al.			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1). 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest-claimed priority date. 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input checked="" type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input checked="" type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). Items 11. to 16. below concern document(s) or information included: 11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input type="checkbox"/> Other items or information:			

US APPLICATION NO. 09/786355

INTERNATIONAL APPLICATION NO.
PCT/CH99/00372ATTORNEY'S DOCKET NUMBER
498717. ☒ The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):

Search Report has been prepared by the EPO or JPO \$860.00

International preliminary examination fee paid to USPTO (37 CFR 1.482) \$690.00

No international preliminary examination fee paid to USPTO (37 CFR 1.482)
but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$760.00Neither international preliminary examination fee (37 CFR 1.482) nor
international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$1000.00International preliminary examination fee paid to USPTO (37 CFR 1.482)
and all claims satisfied provisions of PCT Article 33(2)-(4). \$100.00

CALCULATIONS PTO USE ONLY

ENTER APPROPRIATE BASIC FEE AMOUNT =

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(e)).

\$

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	9 - 20 =	0	X18.00
Independent claims	3 - 3 =	0	X80.00

\$

\$

MULTIPLE DEPENDENT CLAIM(S) (if applicable) \$270.00

\$

TOTAL OF ABOVE CALCULATIONS =

\$860.00

Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement
must also be filed (Note 37 CFR 1.9, 1.27, 1.28).

\$

SUBTOTAL =

\$860.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(f)).

\$

TOTAL NATIONAL FEE =

\$ 860.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +

\$

TOTAL FEES ENCLOSED =

\$ 860.00

Amount to be:
refunded
charged

\$

\$

a. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees.
A duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 19-2110. A duplicate copy of this sheet is enclosed.NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR
1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

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703/415-0810

SIGNATURE

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NAME

28,946

REGISTRATION NUMBER

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the patent application of Lindenberg et al.

Serial No.

Filing date:

Title: Flexible Plastic Tube with Reinforced End

Group Art Unit -- Examiner

Assistant Commissioner for Patents
Washington, D.C. 20231


PRELIMINARY AMENDMENT

Sir:

Please amend this application by substituting the enclosed pages 1 - 6 for pages 1 - 9 of the translation of the original application.

REMARKS

The translated application has been amended to conform to U.S. practice. A marked-up copy of the translation is attached to show the changes made. Headings have been added; references to the claims have been deleted from the specification; and the title has been changed. No new matter is presented.



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March 14, 2001

09/786355 051601

Flexible Plastic Tube with Reinforced End

~~Tube, Use of a Plastic Bag and Process for Producing a Tube~~

BACKGROUND OF THE INVENTION

flexible plastic tube with a reinforced end.
 The invention relates to a tube and the use of a plastic bag.
~~The tube is made of a plastic~~
 with a film material of plastic which forms one face wall and two side walls of the tube.

Resealable bags for holding liquids or pastes are generally made of plastic material with very thin walls. These bags are therefore very unstable and flexible. Therefore they are not suited as tubes.

In tubes the requirement is especially that they can be set up with the sealing cap pointed downward. Here the danger is that the tube will tip over when the film material deforms under the weight of the contents of the tube.

SUMMARY OF THE INVENTION

The object of the invention is mainly to make the tube such that the above described danger of tipping over, when the tube is placed as indicated on the sealing cap, is reduced.

by the invention described below
 The object is achieved as claimed in the independent claims.
~~Advantageously,~~ *Preferably,* the film material is a laminate which has at least one 60 to 200 micron thick inner seal layer of polyolefin and a 10 to 25 micron thick outside layer of polyester, the strip-shaped side edge sections each have a width of at least 6.5% of the total width of the side walls, but in any case are at least 4 mm wide.

The side walls are joined flat to another along two strip-shaped side edge sections and along one strip-shaped end edge section and are provided with a shoulder piece which is stiff compared to the film material and which has a sealable outlet connection piece and a flange which is attached to the face wall.

Advantageously such a simple bag construction with bag material can be modified in the simplest way so that a tube is formed.

BRIEF DESCRIPTION OF THE DRAWINGS

~~Embodiments of the invention are detailed below.~~

In the accompanying drawings,
Figure 1 shows a side view of a bag tube,

Figure 2 shows a section along line 2-2 in Figure 1 and

Figure 3 shows on a larger scale a cross section through the film material of the bag tube, for example in the area of the circle A in Figure 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The bag tube which is shown in Figures 1 and 2 has two side walls 11 and 12 and one face wall 13 which are formed by a piece of film material of plastic. The film material is preferably thin, light, and flexible. As claimed in the invention it is mainly a laminate with an inner seal layer 14 (Figure 3) with a thickness d_1 of 60 to 200 microns, and with an outside layer 15 with a thickness d_2 of 10 to 25 microns. The inner seal layer 14 consists of a polyolefin, preferably polypropylene, polyethylene or a mixed polymer. It can also consist of several layers of different polyolefins. The outside layer 15 consists of polyester, preferably polyethylene terephthalate or polyethylene

napththalate or a mixed polymer of for example 90% to 95% PET and 10% to 5% PEN. Between the inner seal layer 14 and the outside layer 15 there can feasibly be a barrier layer 16. The barrier layer 16 can consist for example of aluminum with a thickness d_3 from 7 to 12 microns or of para-aramide (especially Kevlar).

The two side walls 11 and 12 are tightly connected flat to one another along the two strip-shaped side edge sections 17 and 18 and along one end edge section 19, especially welded. The width B of the side walls 11, 12 in the embodiment is roughly 100 mm each. The side edge sections 17 and 18 each have a width b which is 7% in the embodiment, but generally roughly 6.5 % to 10% of the width B of the side walls 11, 12. For smaller tubes the width b is at least 4 mm. The width b of the weld seams of the two side edge sections 17, 18 thus optimally ensures significant stiffening of the tube body.

A shoulder piece which has a closable opening in the form of an outlet connection piece 20 is attached to the end wall 13. The outlet connection piece 20 is shown closed with a screw cap 21. From the outlet connection piece 20 a flange 22 proceeds which adjoins the face wall 13 on the inside and is attached tightly terminating it, preferably welded tight. The flange 22 on the edges of the face wall 13 has two angled clips 23 and 24 which adjoin the middle areas of the side walls 11 and 12 and which run parallel to the side walls 11 and 12. The clips 23 and 24 stiffen the middle areas of the side walls 11 and 12 adjacent

to the face wall 13. At the same time they protect the film material against twisting and/or damage when the tube is held with one hand in the indicated areas of the side walls 11, 12 for screwing the sealing cap 21 on and off. The shoulder piece can otherwise have different shapes and it could also be attached externally on the face wall 13. The shoulder piece 20, 22, 23, 24 is relatively stiff compared to the film material of the side walls 11, 12 and the face wall 13.

In conjunction with stiffening by the side edge sections 17 and 18 a tube body which is stiff enough for all practical requirements is formed. An additional increase in the stability of the tube against lateral tipping arises in this embodiment by the inner boundaries of the two side edge sections 17 and 18 which face one another in the area of the face wall 13 as shown at 25 and 26 being angled to the inside towards one another. At the same time, in this way the shoulder corners - between the parts 25, 26 and the face wall 13 - are less deep, and the volume of the air enclosed at most therein when the tube is filled is smaller. Furthermore a larger part of the axial length of the outlet connection piece 19 projects downward beyond the shoulder corners. Instead of angled as shown, the inner boundaries of the side edge section 17, 18 can also be bent accordingly.

In the course of production and filling, first of all the two side walls 11 and 12 are welded together along the side edge sections 17 and 18 and the shoulder piece is attached with the

outlet connection piece 20 and the screw cap 21. Then the tube body can be filled from the end opposite the outlet connection piece 20. Thereupon the end edge section 19 is welded so that the tube is closed.

Handling of the tube is greatly facilitated by the stiffening of the tube body which is achieved by means of the wide side edge sections 17 and 18.

Since the invention is subject to modifications and variations, it is intended that the foregoing description and the accompanying drawings shall be interpreted as only illustrative of the invention defined by the following claims.

We claim:

~~Claims~~

1. ^A Tube ^{made of a plastic} with ~~a film material of plastic, which forms~~ ^{forming} one face wall (13) and two side walls (11, 12) of the tube, the side walls (11, 12) being joined flat to another along two strip-shaped side edge sections (17, 18) and along one strip-shaped end edge section (19), and with a shoulder piece (20, 22, 23, 24) which is stiff compared to the film material (11, 12, 13) and which has a sealable outlet connection piece (20) and a flange (22) which is attached to the face wall (13), the film material (11, 12, 13) being a laminate which has at least one 60 to 200 micron thick inner seal layer (14), preferably of polyolefin, and a 10 to 25 micron thick outside layer (15), preferably of polyester, the strip-shaped side edge sections (17, 18) each having a width (b) which is at least 6.5% of the total width (B) of the side walls (11, 12), but in any case is at least 4 mm, the inner boundaries of the two side edge sections (17, 18) facing one another in the area of the face wall (13) being angled or bent to the inside towards one another.

2. ^A Tube as claimed in claim 1, wherein the flange (22) of the shoulder piece (20, 22, 23, 24) at the edges of the face wall (13) has two bent clips (23, 24) which adjoin the middle areas of the side walls (11, 12).

3. ^A Tube as claimed in claim 1 or 2, wherein the inner seal layer (14) consists of polypropylene and/or polyethylene.

4. ^A Tube as claimed in claim 1 to 3, wherein the outside layer (15) consists of polyethylene terephthalate and/or of polyethylene naphthalate.

5. ^A Tube as claimed in one of claims 1 to 4, wherein between the inner seal area (14) and the outer layer (15) there is a barrier layer (16).

6. ^A Tube as claimed in claim 5, wherein the barrier layer (16) consists of aluminum with a thickness from 7 to 12 microns.

7. ^A Tube as claimed in claim 5, wherein the barrier layer (16) consists of para-amide.

8. Use of a plastic bag with a film material of plastic, which forms one face wall (13) and two side walls (11, 12), the side walls (11, 12) being joined flat to another along two strip-shaped side edge sections (17, 18) and along one strip-shaped end edge section (19), and with a shoulder piece (20, 22, 23, 24) which is stiff compared to the film material (11, 12, 13) and which has a sealable outlet connection piece (20) and a flange (22) which is attached to the face wall (13), the film material (11, 12, 13) being a laminate which has at least one 60 to 200 micron thick inner seal layer (14), preferably of polyolefin, and a 10 to 25 micron thick outside layer (15), preferably of polyester, the strip-shaped side edge sections (17, 18) each having a width (b) of at least 6.5% of the total width (B) of the side walls (11, 12), but in any case at least 4 mm, the inner boundaries of the two side edge sections (17, 18) which face one

another in the area of the face wall (13) being angled or bent to the inside towards one another, as a tube.

9.^A process for producing a tube from a film material of plastic, which forms one face wall (13) and two side walls (11, 12) of the tube, the side walls (11, 12) being joined flat to another along two strip-shaped side edge sections (17, 18), and a shoulder piece (20, 22, 23, 24) which is stiff compared to the film material (11, 12, 13) being connected to a closed outlet connection piece (20) with the face wall (13), the film material (11, 12, 13) being a laminate which has at least one 60 to 200 micron thick inner seal layer (14), preferably of polyolefin, and a 10 to 25 micron thick outside layer (15), preferably of polyester, and the strip-shaped side edge sections (17, 18) each having a width (b) of at least 6.5% of the total width (B) of the side walls (11, 12), but in any case at least 4 mm, being welded to one another such that the inner boundaries of the two side edge sections (17, 18) facing one another in the area of the face wall (13) are angled or bent to the inside towards one another, that then the tube is filled from its side opposite the face wall (13) and then being closed, preferably welded along one strip-shaped end edge section (19).

Abstract

Tube, Use of a Plastic Bag and Process for Producing a Tube

A face wall (13) and two side walls (12) of the tube and of the plastic bag used as the tube are formed by a laminate with a 60 to 200 micron thick inner seal layer of polyolefin and a 10 to 25 micron thick outside layer of polyester. The side walls (12) are tightly connected flat to one another along two strip-shaped side edge sections (17, 18) such the inner boundaries of the two side edge sections (17, 18) which face one another in the area of the face wall (13) are angled or bent to the inside towards one another. A shoulder piece (20, 22, 23, 24) has a sealable opening in the form of an outlet connection piece (20) and a flange (22) which is connected to the face wall (13). The strip-shaped side edge sections (17, 18) each have a width (b) which is at least 6.5% of the total width (B) of the side walls (12). This construction of the tube reduces the danger that the side walls could buckle and the tube could tip over when it is set up with the sealing cap (21) screwed onto the outlet connection piece (20) pointed downward.

(Figure 1).

11PRTS

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Tube, Use of a Plastic Bag and Process for Producing a Tube

The invention relates to a tube and the use of a plastic bag with a film material of plastic which forms one face wall and two side walls of the tube.

Resealable bags for holding liquids or pastes are generally made of plastic material with very thin walls. These bags are therefore very unstable and flexible. Therefore they are not suited as tubes.

In tubes the requirement is especially that they can be set up with the sealing cap pointed downward. Here the danger is that the tube will tip over when the film material deforms under the weight of the contents of the tube.

The object of the invention is mainly to make the tube such that the above described danger of tipping over, when the tube is placed as indicated on the sealing cap, is reduced.

The object is achieved as claimed in the independent claims. Advantageously the film material is a laminate which has at least one 60 to 200 micron thick inner seal layer of polyolefin and a 10 to 25 micron thick outside layer of polyester, the strip-shaped side edge sections each have a width of at least 6.5% of the total width of the side walls, but in any case are at least 4 mm wide.

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The side walls are joined flat to another along two strip-shaped side edge sections and along one strip-shaped end edge section and are provided with a shoulder piece which is stiff compared to the film material and which has a sealable outlet connection piece and a flange which is attached to the face wall.

Advantageously such a simple bag construction with bag material can be modified in the simplest way so that a tube is formed.

Embodiments of the invention are detailed below.

Figure 1 shows a side view of a bag tube,

Figure 2 shows a section along line 2-2 in Figure 1 and

Figure 3 shows on a larger scale a cross section through the film material of the bag tube, for example in the area of the circle A in Figure 2.

The bag tube which is shown in Figures 1 and 2 has two side walls 11 and 12 and one face wall 13 which are formed by a piece of film material of plastic. The film material is preferably thin, light, and flexible. As claimed in the invention it is mainly a laminate with an inner seal layer 14 (Figure 3) with a thickness d_1 of 60 to 200 microns, and with an outside layer 15 with a thickness d_2 of 10 to 25 microns. The inner seal layer 14 consists of a polyolefin, preferably polypropylene, polyethylene or a mixed polymer. It can also consist of several layers of different polyolefins. The outside layer 15 consists of polyester, preferably polyethylene terephthalate or polyethylene

napththalate or a mixed polymer of for example 90% to 95% PET and 10% to 5% PEN. Between the inner seal layer 14 and the outside layer 15 there can feasibly be a barrier layer 16. The barrier layer 16 can consist for example of aluminum with a thickness d_3 from 7 to 12 microns or of para-aramide (especially Kevlar).

The two side walls 11 and 12 are tightly connected flat to one another along the two strip-shaped side edge sections 17 and 18 and along one end edge section 19, especially welded. The width B of the side walls 11, 12 in the embodiment is roughly 100 mm each. The side edge sections 17 and 18 each have a width b which is 7% in the embodiment, but generally roughly 6.5 % to 10% of the width B of the side walls 11, 12. For smaller tubes the width b is at least 4 mm. The width b of the weld seams of the two side edge sections 17, 18 thus optimally ensures significant stiffening of the tube body.

A shoulder piece which has a closable opening in the form of an outlet connection piece 20 is attached to the end wall 13. The outlet connection piece 20 is shown closed with a screw cap 21. From the outlet connection piece 20 a flange 22 proceeds which adjoins the face wall 13 on the inside and is attached tightly terminating it, preferably welded tight. The flange 22 on the edges of the face wall 13 has two angled clips 23 and 24 which adjoin the middle areas of the side walls 11 and 12 and which run parallel to the side walls 11 and 12. The clips 23 and 24 stiffen the middle areas of the side walls 11 and 12 adjacent

to the face wall 13. At the same time they protect the film material against twisting and/or damage when the tube is held with one hand in the indicated areas of the side walls 11, 12 for screwing the sealing cap 21 on and off. The shoulder piece can otherwise have different shapes and it could also be attached externally on the face wall 13. The shoulder piece 20, 22, 23, 24 is relatively stiff compared to the film material of the side walls 11, 12 and the face wall 13.

In conjunction with stiffening by the side edge sections 17 and 18 a tube body which is stiff enough for all practical requirements is formed. An additional increase in the stability of the tube against lateral tipping arises in this embodiment by the inner boundaries of the two side edge sections 17 and 18 which face one another in the area of the face wall 13 as shown at 25 and 26 being angled to the inside towards one another. At the same time, in this way the shoulder corners - between the parts 25, 26 and the face wall 13 - are less deep, and the volume of the air enclosed at most therein when the tube is filled is smaller. Furthermore a larger part of the axial length of the outlet connection piece 19 projects downward beyond the shoulder corners. Instead of angled as shown, the inner boundaries of the side edge section 17, 18 can also be bent accordingly.

In the course of production and filling, first of all the two side walls 11 and 12 are welded together along the side edge sections 17 and 18 and the shoulder piece is attached with the

outlet connection piece 20 and the screw cap 21. Then the tube body can be filled from the end opposite the outlet connection piece 20. Thereupon the end edge section 19 is welded so that the tube is closed.

Handling of the tube is greatly facilitated by the stiffening of the tube body which is achieved by means of the wide side edge sections 17 and 18.

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Claims

1. Tube with a film material of plastic, which forms one face wall (13) and two side walls (11, 12) of the tube, the side walls (11, 12) being joined flat to another along two strip-shaped side edge sections (17, 18) and along one strip-shaped end edge section (19), and with a shoulder piece (20, 22, 23, 24) which is stiff compared to the film material (11, 12, 13) and which has a sealable outlet connection piece (20) and a flange (22) which is attached to the face wall (13), the film material (11, 12, 13) being a laminate which has at least one 60 to 200 micron thick inner seal layer (14), preferably of polyolefin, and a 10 to 25 micron thick outside layer (15), preferably of polyester, the strip-shaped side edge sections (17, 18) each having a width (b) which is at least 6.5% of the total width (B) of the side walls (11, 12), but in any case is at least 4 mm, the inner boundaries of the two side edge sections (17, 18) facing one another in the area of the face wall (13) being angled or bent to the inside towards one another.

2. Tube as claimed in claim 1, wherein the flange (22) of the shoulder piece (20, 22, 23, 24) at the edges of the face wall (13) has two bent clips (23, 24) which adjoin the middle areas of the side walls (11, 12).

3. Tube as claimed in claim 1 or 2, wherein the inner seal layer (14) consists of polypropylene and/or polyethylene.

4. Tube as claimed in claim 1 to 3, wherein the outside layer (15) consists of polyethylene terephthalate and/or of polyethylene naphthalate.

5. Tube as claimed in one of claims 1 to 4, wherein between the inner seal area (14) and the outer layer (15) there is a barrier layer (16).

6. Tube as claimed in claim 5, wherein the barrier layer (16) consists of aluminum with a thickness from 7 to 12 microns.

7. Tube as claimed in claim 5, wherein the barrier layer (16) consists of para-amide.

8. Use of a plastic bag with a film material of plastic, which forms one face wall (13) and two side walls (11, 12), the side walls (11, 12) being joined flat to another along two strip-shaped side edge sections (17, 18) and along one strip-shaped end edge section (19), and with a shoulder piece (20, 22, 23, 24) which is stiff compared to the film material (11, 12, 13) and which has a sealable outlet connection piece (20) and a flange (22) which is attached to the face wall (13), the film material (11, 12, 13) being a laminate which has at least one 60 to 200 micron thick inner seal layer (14), preferably of polyolefin, and a 10 to 25 micron thick outside layer (15), preferably of polyester, the strip-shaped side edge sections (17, 18) each having a width (b) of at least 6.5% of the total width (B) of the side walls (11, 12), but in any case at least 4 mm, the inner boundaries of the two side edge sections (17, 18) which face one

another in the area of the face wall (13) being angled or bent to the inside towards one another, as a tube.

9. Process for producing a tube from a film material of plastic, which forms one face wall (13) and two side walls (11, 12) of the tube, the side walls (11, 12) being joined flat to another along two strip-shaped side edge sections (17, 18), and a shoulder piece (20, 22, 23, 24) which is stiff compared to the film material (11, 12, 13) being connected to a closed outlet connection piece (20) with the face wall (13), the film material (11, 12, 13) being a laminate which has at least one 60 to 200 micron thick inner seal layer (14), preferably of polyolefin, and a 10 to 25 micron thick outside layer (15), preferably of polyester, and the strip-shaped side edge sections (17, 18) each having a width (b) of at least 6.5% of the total width (B) of the side walls (11, 12), but in any case at least 4 mm, being welded to one another such that the inner boundaries of the two side edge sections (17, 18) facing one another in the area of the face wall (13) are angled or bent to the inside towards one another, that then the tube is filled from its side opposite the face wall (13) and then being closed, preferably welded along one strip-shaped end edge section (19).

Abstract

Tube, Use of a Plastic Bag and Process for Producing a Tube

A face wall (13) and two side walls (12) of the tube and of the plastic bag used as the tube are formed by a laminate with a 60 to 200 micron thick inner seal layer of polyolefin and a 10 to 25 micron thick outside layer of polyester. The side walls (12) are tightly connected flat to one another along two strip-shaped side edge sections (17, 18) such the inner boundaries of the two side edge sections (17, 18) which face one another in the area of the face wall (13) are angled or bent to the inside towards one another. A shoulder piece (20, 22, 23, 24) has a sealable opening in the form of an outlet connection piece (20) and a flange (22) which is connected to the face wall (13). The strip-shaped side edge sections (17, 18) each have a width (b) which is at least 6.5% of the total width (B) of the side walls (12). This construction of the tube reduces the danger that the side walls could buckle and the tube could tip over when it is set up with the sealing cap (21) screwed onto the outlet connection piece (20) pointed downward.

(Figure 1).

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Fig. 1

1/1

Fig. 2

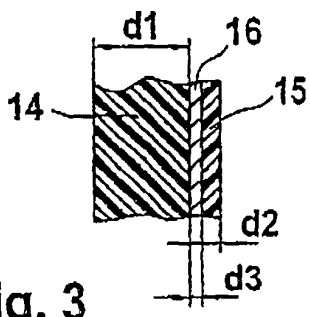
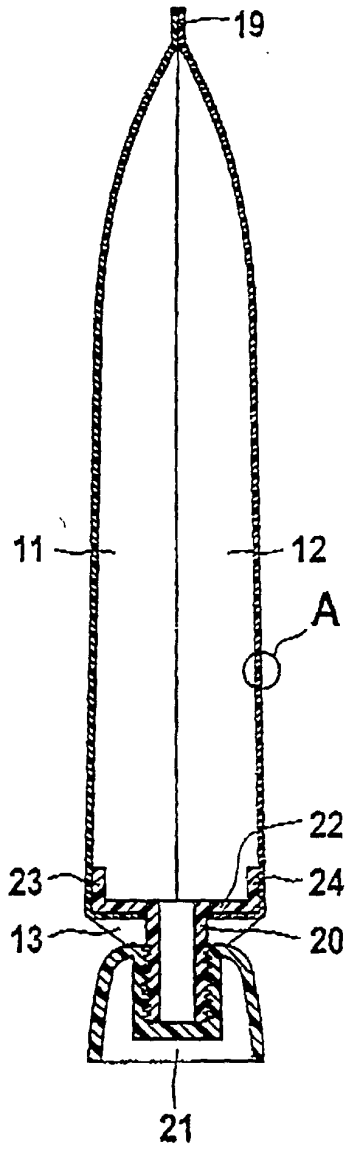
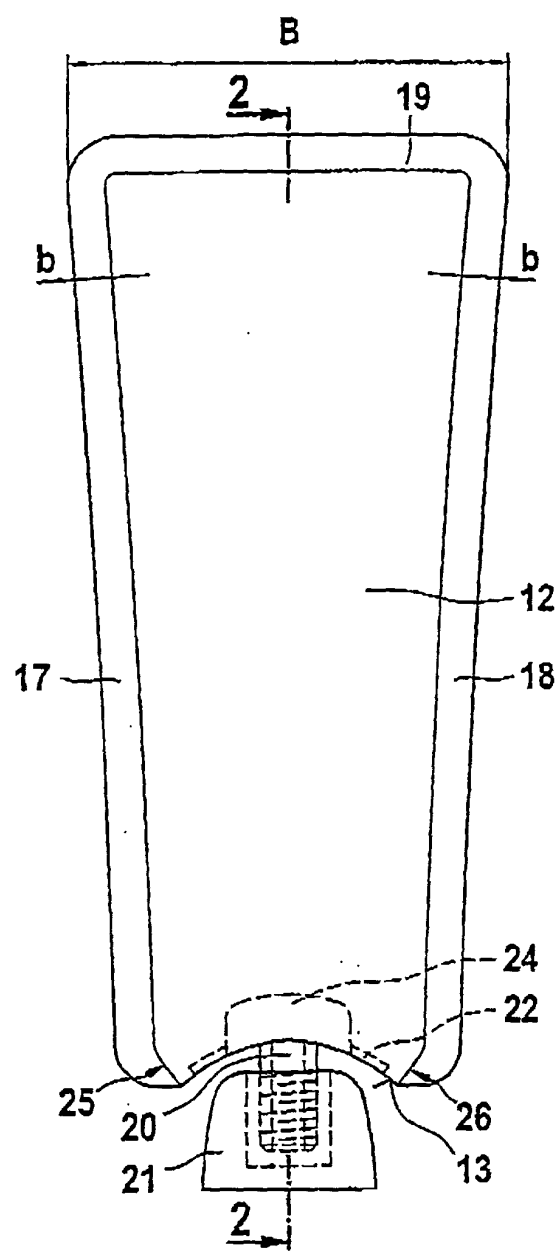


Fig. 3

Attorney's Docket No. _____

- ☐ Original Application
☐ PCT National Application—U.S. Designated Office
☐ Continuation-in-Part Application

COMBINED DECLARATION, PETITION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

☐ the specification of which

☐ is attached hereto.

☐ was filed on _____ as

Application Serial No. _____

and was amended on _____

(if applicable)

☐ which is described in international application no. _____ filed _____

and as amended on _____ (if any), which I have reviewed and for which I solicit a United States patent.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I do not know and do not believe that the same was ever known or used in the United States before my or our invention thereof or patented or described in any printed publication in any country before my or our invention thereof more than one year prior to this application or said international application, that the same was not in public use or on sale in the United States of America more than one year prior to this application or said international application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application or said international application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application or said international application and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application or said international application by me or my legal representatives or assigns except as identified below.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Number	Country	Date of Filing (day, month, year)	Priority Claimed
98810917.9	Europe	15. September 1998	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
			<input type="checkbox"/> yes <input type="checkbox"/> no
			<input type="checkbox"/> yes <input type="checkbox"/> no
			<input type="checkbox"/> yes <input type="checkbox"/> no
			<input type="checkbox"/> yes <input type="checkbox"/> no

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the United States Patent and Trademark Office connected therewith:

Jerry W. Berkstresser, Reg. No. 22,651; Paul V. Del Giudice, Reg. No. 28,788;

Allen P. Rosenberg, Reg. No. 24,946; and Charles W. Fallow, Reg. No. 28,946

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Direct telephone calls to: Jerry W. Berkstresser, Paul V. Del Giudice, Allen P. Rosenberg, or Charles W. Fallow at (703) 521-5210

I hereby petition for grant of a United States Letters Patent on this invention.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1. FULL NAME OF SOLE OR FIRST INVENTOR Werner Lindenberger		INVENTOR'S SIGNATURE <i>W. Lindenberger</i>	DATE 14.3.01
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2. FULL NAME OF SECOND JOINT INVENTOR, IF ANY Beat Huggenberger		INVENTOR'S SIGNATURE <i>Beat Huggenberger</i>	DATE 14.3.01
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3. FULL NAME OF THIRD JOINT INVENTOR, IF ANY		INVENTOR'S SIGNATURE	DATE
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4. FULL NAME OF FOURTH JOINT INVENTOR, IF ANY		INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			